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10/665,722	09/19/2003	Victor Morozov	GMU-08-013U	4650

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EXAMINER	
JUNG, UNSU	

ART UNIT	PAPER NUMBER
1641	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/665,722	MOROZOV ET AL.	
	Examiner	Art Unit	
	UNSU JUNG	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8,9 and 14-35* is/are pending in the application.

4a) Of the above claim(s) *8,9,14-20 and 24-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-23 and 31-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of species 3 (magnetic particles, claims 23-30) in the reply filed on January 16, 2009 is acknowledged. The traversal is on the ground(s) that search may be carried out without an undue burden on the examiner as the search can be directed towards the overall immobilization of secondary probe molecules as opposed to a specific type of particle. This is not found persuasive because each of the specific type of particles immobilized to the second probe molecules is a different structure and each particle immobilized to secondary probe molecules would require different search terms. Although the search would be directed towards the overall secondary probe molecules, specific bound particles must also be searched. While searches would be expected to overlap, there is no reason to expect the searches to be coextensive.

The requirement is still deemed proper and is therefore made FINAL.

2. Newly submitted claims 24-30 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: claims 24-30 are directed to species of moving magnetic particles using magnetic field, which was originally presented in previously withdrawn claim 8, The species of moving magnetic particles using magnetic field as currently recited in claims 24-30 is patentably distinct

from the species of moving a particle using centrifugal forces, which was originally presented in claim 7, which is currently cancelled.

Since applicant has received an action on the merits for the originally presented species of moving a particle using centrifugal forces as previously recited in claim 7, this species has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 24-30 have been withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Status of Claims

3. Claims 8, 9, and 14-35 are pending, claims 8, 9, 14-20, and 24-30 have been withdrawn from consideration, and claims 21-23 and 31-35 are currently under consideration for patentability under 37 CFR 1.104.

Priority

4. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. The instant application, filed on September 19, 2003, claims the benefit of priority of U.S. Provisional Patent Application Serial No. 60/412,664, filed on September 20, 2002.

Rejections Withdrawn

5. The following rejections have been withdrawn in view of cancelled claims 1-7 and 10-13 in the reply filed on September 18, 2008:

- Rejection of claims 1-7 and 10-13 under 35 U.S.C. 112, second paragraph;
- Rejection of claims 1, 2, 10, and 11 under 35 U.S.C. 102(a) and 102(e) as being anticipated by Wagner et al. (U.S. Patent No. 6,329,209 B1, published Dec. 11, 2001 and filed July 14, 1999);
- Rejection of claims 1-4, 10, and 11 under 35 U.S.C. 102(b) as being anticipated by Heller et al. (U.S. Patent No. 6,245,508 B1, June 12, 2001);
- Rejection of claims 3 and 4 under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. (U.S. Patent No. 6,329,209 B1, published Dec. 11, 2001 and filed July 14, 1999) in view of Heller et al. (U.S. Patent No. 6,245,508 B1, June 12, 2001);
- Rejection of claim 5 under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. (U.S. Patent No. 6,329,209 B1, published Dec. 11, 2001 and filed July 14, 1999) in view of Heller et al. (U.S. Patent No. 6,245,508 B1, June 12, 2001), and further in view of Bier (U.S. Patent No. 4,040,940, Aug. 9, 1977);
- Rejection of claim 5 under 35 U.S.C. 103(a) as being unpatentable over Heller et al. (U.S. Patent No. 6,245,508 B1, June 12, 2001) in view of Bier (U.S. Patent No. 4,040,940, Aug. 9, 1977);
- Rejection of claim 6 under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. (U.S. Patent No. 6,329,209 B1, published Dec. 11, 2001

and filed July 14, 1999) in view of Baselt (U.S. Patent No. 5,981,297, Nov. 9, 1999);

- Rejection of claim 6 under 35 U.S.C. 103(a) as being unpatentable over Heller et al. (U.S. Patent No. 6,245,508 B1, June 12, 2001) in view of Baselt (U.S. Patent No. 5,981,297, Nov. 9, 1999);
- Rejection of claims 7, 12, and 13 under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. (U.S. Patent No. 6,329,209 B1, published Dec. 11, 2001 and filed July 14, 1999) in view of Baselt (U.S. Patent No. 5,981,297, Nov. 9, 1999), and further in view of Smith et al. (U.S. PG Pub. No. US 2002/0001803 A1, published Jan. 3, 2002 and filed on July 20, 1999); and
- Rejection of claims 7, 12, and 13 under 35 U.S.C. 103(a) as being unpatentable over Heller et al. (U.S. Patent No. 6,245,508 B1, June 12, 2001) in view of Baselt (U.S. Patent No. 5,981,297, Nov. 9, 1999), and further in view of Smith et al. (U.S. PG Pub. No. US 2002/0001803 A1, published Jan. 3, 2002 and filed on July 20, 1999).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 31 and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification as originally filed does not provide support for the invention as now claimed: "the distance between the first electrode and the first semi-permeable membrane is at least 1 mm" and "the distance between the second electrode and the second semi-permeable membrane is at least 1 mm" as recited in claims 31 and 32, respectively.

Applicant's amendments, filed pm September 18, 2008 asserts that no new matter has been added and directs support to Fig.'s 1-3, 8, 15, and 18-24 and paragraphs [0054]-[0104] and Examples 7, 8, and 11 of the specification for the written description for the newly submitted claims. However, the specification does not provide for the limitations of "the distance between the first electrode and the first semi-permeable membrane is at least 1 mm" and "the distance between the second electrode and the second semi-permeable membrane is at least 1 mm" as recited in claims 31 and 32, respectively.

The specification as filed does not provide a written description or set forth the metes and bounds of this phrase. The specification does not provide blazemarks nor direction for the instant methods encompassing the above-mentioned "the distance between the first electrode and the first semi-permeable membrane is at least 1 mm"

and "the distance between the second electrode and the second semi-permeable membrane is at least 1 mm" as they are currently recited. The instant claims now recite limitations which were not clearly disclosed in the specification as-filed, and now change the scope of the instant disclosure as-filed. Such limitations recited in the present claims, which did not appear in the specification, as filed, introduce new concepts and violate the description requirement of the first paragraph of 35 U.S.C. 112.

Applicant is required to cancel the new matter in the response to this Office action.

Alternatively, applicant is invited to provide sufficient written support for the "the distance between the first electrode and the first semi-permeable membrane is at least 1 mm" and "the distance between the second electrode and the second semi-permeable membrane is at least 1 mm" indicated above.

See MPEP 714.02 and 2163.06.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 21, 31-33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heller et al. (U.S. Patent No. 6,245,508 B1, June 12, 2001) (hereinafter "Heller") in view of Goldstein et al. (U.S. Patent No. 4,584,075, Apr. 22, 1986) (hereinafter "Goldstein").

Heller teaches a method for detecting an analyte (see entire document) comprising:

- immobilizing a probe on a surface of a first semi-permeable membrane (permeation layer) column 10, lines 5-9 and 17-40), only the edges of the first semi-permeable membrane are bound to a first support (and the immobilized probe molecule is placed in a channel comprising an analyte solution or suspension (column 10, line 66-column 11, line 2);
- applying electric potential to the analyte to move the analyte toward the probe, thereby allowing the analyte to bind the probe (column 10, line 66-column 11, line 21);
- reversing the force or applying another force, to remove unbound or weakly bound analyte from the surface (column 11, lines 22-41); and
- detecting the analyte bound to the probe (column 10, lines 17-20 and column 18, line 3).

With respect to claim 33, Heller teaches that the surface is an activated surface (functionalized surface, column 18, lines 7-17) and that the surface is a semi-permeable membrane, penetrable for salt and buffer ions (small charged entities), but not for analytes (large charged entities, column 10, lines 5-9).

With respect to claims 34, Heller teaches multitude of the first semi-permeable membrane used in parallel (column 5, lines 22-32).

However, Heller fails to teach a method, further comprising the steps of placing a second semi-permeable membrane in a position that is parallel to the first semi-permeable membrane forming a gap with the first semi-permeable membrane, wherein the first probe molecules are inside the gap and facing the second semi-permeable

membrane; contacting the side of the first semi-permeable membrane that is outside the gap with a first electrolyte solution, the first electrolyte solution being in contact with a first electrode; contacting the side of the second semi-permeable membrane that is outside the gap with a second electrolyte solution, the second electrolyte solution being in contact with a second electrode; and filling the gap with an analyte solution or suspension to create a fluid connection between analytes in the analyte solution or the suspension with the first probe molecules.

Goldstein teaches a method for rapid binding of bioactive molecules to their ligands immobilized on a surface using electrophoretic transport of bioactive molecules (see entire document, particularly Fig. 1(b)). In the method of Goldstein, two barriers (semi-permeable membranes) in a position that is parallel to each other forming a gap between the two membranes (first and second semi-permeable membranes, column 4, line 59-column 5, line 45). A biospecific ligand attached to the barrier 3 in Fig. 1(b) (the first probe molecules are inside the gap and facing the second semi-permeable membrane). Each side of first and second barriers (sides of the semi-permeable membranes outside the gap, compartments 7 and 8 in Fig. 1(b)) are filled with appropriate electrolyte solutions and the gap (compartment 6 in Fig. 1(b)) is filled with appropriate liquid containing ligate(s) (analyte solution, column 4, line 59-column 5, line 45). The second barrier provides protection of the sorbing groups 5 and/or ligands sorbed thereon or desorbed therefrom from the products of electrolysis as electrode (column 3, lines 3-14).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to employ the second semi-permeable membrane in a position that is parallel to each of the first semi-permeable membrane to form a gap with the first semi-permeable membrane as taught by Goldstein (which further teaches that the first probe molecules are inside the gap and facing the second semi-permeable membrane and further includes steps of contacting the side of the first semi-permeable membrane that is outside the gap with a first electrolyte solution, the first electrolyte solution being in contact with a first electrode; contacting the side of the second semi-permeable membrane that is outside the gap with a second electrolyte solution, the second electrolyte solution being in contact with a second electrode; and filling the gap with an analyte solution or suspension to create a fluid connection between analytes in the analyte solution or the suspension with the first probe molecules) in the method of Heller in order to provide rapid binding of analytes to the probe molecules on the first membrane. The advantage of protecting of the probe molecules and/or analytes thereon from the electrodes provides the motivation to combine teachings of Heller and Goldstein with reasonable expectation of success.

With respect to claims 31 and 32, it has long been settled to be no more than routine experimentation for one of ordinary skill in the art to discover an optimum value for a result effective variable. Section 2144.05 [R3] of the MPEP presents case law upholding obviousness rejections based on optimization of ranges:

> A. Optimization Within Prior Art Conditions or Through Routine Experimentation
>
> Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is

> evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be prima facie obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.); see also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969) (Claimed elastomeric polyurethanes which fell within the broad scope of the references were held to be unpatentable thereover because, among other reasons, there was no evidence of the criticality of the claimed ranges of molecular weight or molar proportions.)

The specification does not disclose that the specifically claimed ranges of at least 1 mm distance between the first electrode and the first semi-permeable membrane and at least 1 mm distance between the second electrode and the second semi-permeable membrane are for any particular purpose or to solve any stated problem that distinguishes it from the other ranges disclosed. The specification therefore lacks disclosure of the criticality required by the Courts in providing patentability to the claimed range(s).

In addition to a lack of disclosed criticality in the specification, an obviousness rejection based upon optimization must rely on prior art that discloses the optimized parameter is a result-effective variable. See MPEP 2144.05:

> B. Only Result-Effective Variables Can Be Optimized
>
> A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of

> 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy).

Since Heller in view of Goldstein teach that a fist electrode distanced apart from a first semi-permeable membrane and a second electrode distanced apart from a second semi-permeable membrane, the prior art therefore provides teaching that variation of distances between the first/second electrode and first/second semi-permeable membrane is a variable that achieves a recognized result, and satisfies the above requirement of a result-effective variable in order to set forth an obviousness rejection based on optimization.

Because Applicants fail to disclose that the claimed ranges of at least 1 mm distance between the first electrode and the first semi-permeable membrane and at least 1 mm distance between the second electrode and the second semi-permeable membrane provide a criticality to the invention that separates it from the other ranges in the specification, and the prior art discloses that a fist electrode distanced apart from a first semi-permeable membrane and a second electrode distanced apart from a second semi-permeable membrane absent unexpected results, it would therefore have been obvious for one of ordinary skill to discover the optimum workable ranges of at least 1 mm distance between the first electrode and the first semi-permeable membrane and at least 1 mm distance between the second electrode and the second semi-permeable membrane by normal optimization procedures known in the arts.

12. Claim 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heller (U.S. Patent No. 6,245,508 B1, June 12, 2001) in view of Goldstein (U.S. Patent No. 4,584,075, Apr. 22, 1986) as applied to claim 21 above, and further in view of Baselt (U.S. Patent No. 5,981,297, Nov. 9, 1999).

Heller in view of Goldstein teaches a method for detecting an analyte as set forth above. Although Heller teaches that variety of different detection methods can be employed using appropriate labeling/reporter groups that produce detectable signal (column 19, line 47-column 20, line 6), Heller in view of Goldstein is silent on teaching the analyte bound to a particle.

With respect to claims 22 and 23, Baselt teaches method and apparatus for detecting target molecules in a liquid phase (see entire document, particularly Abstract). The apparatus monitors whether the target molecule has selectively bound to recognition agents on the surface of a magnetic field sensor by monitoring the output of the sensor (Abstract). The recognition agents which selectively bind target molecules are covalently bound to microfabricated magnetic field sensors (Abstract). These sensors are then exposed to a sample suspected of containing the target molecules, whereupon the recognition agents bind to and immobilize any target molecules present (Abstract). A change in the output of the magnetic field sensors indicates the presence of magnetic particles bound to the sensors, and thereby indicates the presence and concentration of target molecule in the sample (Abstract). The method of Baselt allows simultaneous and rapid detection of a wide range of chemical and biological species obtained from either the vapor or liquid phase, with a high degree of sensitivity (column

3, lines 16-35). The detection device of Baselt is compact and fully automated and allows measurement of intermolecular binding forces and thereby analyze recognition events (column 3, lines 16-35).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to employ the detection method of Baselt, in which analytes are bound to magnetic particles, in the method of Heller in view of Goldstein as the detection method of Baselt allows simultaneous and rapid detection of a wide range of chemical and biological species obtained from either the vapor or liquid phase, with a high degree of sensitivity. The advantage of allowing simultaneous and rapid detection of a wide range of chemical and biological species obtained from either the vapor or liquid phase, with a high degree of sensitivity using compact and fully automated device further allowing measurement of intermolecular binding forces and thereby analyze recognition events provides the motivation to combine methods of Heller view of Goldstein and Baselt. Further, one of ordinary skill in the art would have had a reasonable expectation of success in employing the detection method of Baselt, in which analytes are bound to magnetic particles, in the method of Heller view of Goldstein since Heller teaches that variety of different detection methods known in the art can be employed using appropriate labeling/reporter groups that produce detectable signal.

13. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heller (U.S. Patent No. 6,245,508 B1, June 12, 2001) in view of Goldstein (U.S. Patent No.

4,584,075, Apr. 22, 1986) as applied to claim 21 above, and further in view of Bier (U.S. Patent No. 4,040,940, Aug. 9, 1977).

Heller in view of Goldstein teaches a method for detecting an analyte as set forth above. Although Heller in view of Goldstein teaches that the analyte solutions may be delivered to the reaction sites via electrophoretic flow in the gap (polarization of membrane), Heller in view of Goldstein is silent on teaching an additional step of forming a self-forming density gradient in the channel in order to suppress convection in the channel.

Bier teaches that the electrophoretic process of separation of soluble or particulate ionized matter is potentially complicated by convective effects (see entire document, particularly column 1, lines 16-33). These may be caused by unequal temperature distribution, due to Joule heating or unequal solute concentration, due to resolution of the sample into sharply compartmentalized individual zones. Stabilization against these convective disturbances is essential. The most common way to avoid convection is to work in gels, or columns packed with finely dispersed matter, such as glass beads, agarose granules, starch granules, etc., whereby electrophoresis is carried out in the interstitial capillary bed formed by these materials. Another way to stabilize against convective flow is to create a density gradient using an inert solute, such as sucrose (self-forming density gradient).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to provide a density gradient using an inert solute, such as sucrose (self-forming density gradient) as taught by Bier in the channel of Heller in

view of Goldstein in order to stabilize against convective flow during the electrophoretic flow of the analyte solution within the channel. The advantage of avoiding the convective flow, which can potentially complicate the electrophoretic flow of particles/analytes in solution, provides the motivation to combine teachings of Heller in view of Goldstein and Bier with a reasonable expectation of success.

Response to Arguments

14. Applicant's arguments with respect to claim 21 have been considered but are moot in view of the new ground(s) of rejection.

Since the prior art fulfills all the limitations currently recited in the claims, the invention as currently recited would read upon the prior art.

Conclusion

15. No claim is allowed.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to UNSU JUNG whose telephone number is (571)272-8506. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Shibuya can be reached on 571-272-0806. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Unsu Jung/
Unsu Jung
Primary Examiner
Art Unit 1641